

## CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts in regard to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective services.

Snowfall and rainfall are expressed in inches.

**Alabama.**—The most noteworthy characteristics of the month were generally clear to partly cloudy weather and some little deficiency in warmth and moisture, as compared with the normal. The mean temperature was 45.4°, or 1.2° less than normal. The highest was 86°, at Citronelle on the 1st; the lowest, 8°, at Scottsboro on the 6th. The average precipitation was 3.59, or 0.63 less than normal. The greatest monthly was 6.81, at Newbury and Union; the least, 1.00, at Claiborne.

**Arizona.**—The mean temperature was 44.0°, or 9.0° below normal. The highest was 85°, at Tucson University on the 4th and Buckeye on the 10th; the lowest, 7° below zero, at Flagstaff on the 19th. The average precipitation was 0.38, or 0.02 above normal. The greatest monthly was 1.52, at Pinal Ranch, and the least, "trace," at Signal.

**Arkansas.**—The mean temperature was 43.7°, or 1.8° below normal. The highest was 78°, at Elon on the 18th and 19th and at Texarkana on the 21st; the lowest, 5°, at Silver Springs on the 3d. The average precipitation was 3.96, or 0.38 below normal. The greatest monthly was 10.04, at Winslow, and the least, 1.31, at Russellville. Snow fell in all portions of the State, ranging from a "trace" in the extreme south to 5.00 at some stations in the central portion.

**California.**—The mean temperature was 52.9°, or 6.8° below normal. The highest was 110°, on the 12th, at Galton in the desert regions of Riverside County. The lowest, 19° below zero, at Adin on the 22d and at Bodie on the 29th. The average precipitation was 1.95, or 2.47 below normal. The greatest monthly was 11.20, at Bowmans Dam; the lowest was 0.00, at Barstow, McMullen, and Needles.

**Colorado.**—The month was unusually cold on the western Slope. The deficiency ranged between 4° and 9° daily. East of the Continental Divide the temperature was about normal over Larimer and Boulder counties, and 2° below the average over western Arapahoe, Bent, and Sedgwick counties. In other sections on the eastern Slope the month was from 1° to 6° colder than usual. The highest temperature recorded was 73°, at Smoky Hill on the 12th and at Minneapolis on the 13th. The lowest, 35° below zero, at Gunnison on the 18th and 28th. The average precipitation was 0.64, or about one-half the usual amount. The greatest monthly was 4.50, at Climax. Several stations reported no rain or snow.

**Florida.**—Severe frosts occurred over the northern and north-central portions of the State, and less severe ones as far south as Eau Gallie and Melbourne. The mean temperature was 54.7°, or 7.3° below the normal. The highest temperature was 86°, at Lemon City on the 1st, and the lowest, 22°, at Archer on the 6th. The average precipitation was 1.63, or about one and a quarter inches below normal. The greatest monthly was 6.27, at Jupiter, and the least, 0.43, at Kissimmee.

**Georgia.**—The mean temperature was 46.5°, or about 1° less than normal. The highest, 80°, was recorded at Morgan on the 7th, and the lowest, 9°, at Diamond on the 31st. The average precipitation was 3.14, or 1.10 less than normal. The greatest monthly was 5.71, at Diamond, and the least, 0.93, at Brag. Snow fell on several days in the northern counties, but was very light, except in the mountain districts.

**Idaho.**—The mean temperature was 23.9°, or 1.3° below normal. The highest was 60°, at Fraser on the 5th and Lewiston on the 12th; the lowest, 23° below zero, at Chesterfield on the 30th. The average precipitation was 2.05, or 0.16 above normal. The greatest monthly amount was 5.06, at Fort Sherman, and the least, 0.20, at Downey and Oakley. High winds were of frequent occurrence during the latter part of the month.

**Illinois.**—The mean temperature was 2.8° above normal. The highest was 70° at Mount Vernon on the 24th, and the lowest, 8° below zero, at Ashton on the 3d and 5th, Chemung on the 3d, and Oswego on the 5th. The precipitation averaged more than 2.25 above normal. The greatest was 8.08, at Springfield, and the least, 1.41, at Lanark. It is especially noteworthy that the heavy rain came with a thaw which took the frost from the ground and permitted the rain to be absorbed, thus preventing damaging overflows and wetting the soil thoroughly.

**Indiana.**—The mean temperature was 34.1°, or 0.9° above normal. The highest was 69°, at Ashboro on the 20th, and the lowest, 2°, at LaFayette on the 3d and Gunman on the 31st. The average precipitation was 4.50, or 1.58 above normal. The greatest occurred in the northern portion of the State, and the least in the southern. The greatest monthly was 8.25, at South Bend, and the least, 2.80, at Bedford.

**Iowa.**—The mean temperature was 25.2°, or 1.7° above normal. The highest was 63°, at Keokuk on the 17th, and the lowest, 16° below zero, at Rock Rapids on the 2d. The average precipitation was 1.63, or normal. Its distribution was very unequal; most of it fell in the southeast

and east districts. The largest amount was 5.74, at Fort Madison; the least, 0.00, at Estherville.

**Kansas.**—The mean temperature was 33.4°, or 1.5° below the normal. The highest was 75°, at Meade on the 13th, and the lowest, 7° below zero, at Coolidge on the 20th. The average precipitation was 1.78, or 0.61 above normal. The greatest monthly was 12.45, at Oswego, and the least, "trace," at Macksville and Phillipsburg. The storms of the 16th to the 24th caused great floods and much damage in the southeastern counties.

**Kentucky.**—The mean temperature was 38.8°, or very near normal. The highest was 77°, at Paducah on the 24th, and the lowest, 6°, at Princeton on the 4th. The average precipitation was 4.43, or about 0.75 above normal. The greatest monthly total was 6.68, at Russellville, and the least, 2.55, at Sandy Hook.

**Louisiana.**—The mean temperature was 51.3°, or 2.9° below normal. The highest was 81° at Schriever on the 1st, and the lowest, 18°, at the North Louisiana Experiment Station (Calhoun) on the 30th. The average precipitation was 4.48, or 0.77 above normal. The greatest monthly was 7.14 at Amite, and the least, 1.87, at Shreveport.

**Maryland.**—The mean temperature was 37.6°, or 2.1° above normal. The highest was 70°, at Pocomoke City on the 21st, and the lowest, 7°, below zero, at Deer Park on the 4th. The average precipitation was 2.49, or 0.45 below normal; the greatest was 3.75, which occurred at Western Maryland College, Westminster, and the least, 1.50, at Deer Park. Seventeen inches of snow fell during the month at Oakland.

**Michigan.**—The mean temperature was 27.5°, or 0.3° above normal. The highest was 63°, at Birmingham on the 25th and Adrian on the 26th; the lowest, 18° below zero, at Flint on the 13th. The average precipitation was 4.89°, or 2.38° above normal. The average total precipitation was the greatest of which this bureau has record during any December. The continuous 10-day rain from the 16th to the 26th is also unprecedented in the December records of the State. The greatest monthly precipitation, 10.56, occurred at Benton Harbor, and the least, 1.20, at Harbor Springs.

**Minnesota.**—The mean temperature was 18.3°, or 0.9° above normal. The highest was 51°, at Winona and Minnesota City on the 17th, and the lowest, 27°, below zero, at Pokegama Falls on the 30th. The average precipitation was 0.28, or 0.63 below the normal. The greatest was 1.55, at Winona, the lowest, 0.00, at St. Cloud.

**Mississippi.**—The mean temperature was 47.3°, or 0.2° below normal. The highest was 81°, at Vaiden on the 23d, and the lowest, 10°, at Duck Hill on the 5th. The average precipitation was 5.08, or 0.05 below normal. The largest monthly was 7.34, at Brookhaven and Vaiden, and the smallest, 2.37, at Austin. The rainfall was very well distributed over the entire State.

**Missouri.**—The mean temperature was 34.3°, or 0.4° above normal. The highest was 69°, at Appleton City on the 17th, and the lowest, 8°, below zero, at McCune Station on the 3d. The average precipitation was 6.19°, or 4.19° above normal. The greatest monthly total, 13.67, occurred at Phillipsburg, and the least, 1.28, at Marryville. In the southwest, central, and northeast portions of the State the greater part of the rainfall of the month fell during the storm which prevailed from the 17th to the 20th. At Phillipsburg, Laclede County, the total fall during this storm was 12.20, 6.95 falling between 5 p. m. of the 17th and 5 p. m. of the 18th. At Lebanon, in the same county, the total precipitation for the storm was 10.50; at Springfield, Mount Vernon, Lawrence County, and Fulton, Callaway County, it exceeded 9 inches and over the greater part of the central and southwest sections, and a considerable portion of the northeast section, it exceeded 6 inches. This phenomenally heavy rainfall caused destructive floods in the Osage, Sack, Spring, Gasconade, Meramec and Cuivre rivers and their tributaries, and other streams in the southwest, central, and east-central portions of the State. The Osage River is reported to have been the highest since 1844, and the floods were the worst ever known to have occurred at this season of the year. Bridges and culverts were washed out; many buildings were submerged, their contents destroyed, and a large number of families rendered destitute.

**Montana.**—The mean temperature was 27.0°, or about 2.0° below normal. The highest was 70°, at Poplar on the 10th, and the lowest, 29° below zero, at Glasgow on the 2d. The average precipitation was 0.79, or about 0.06 above normal. The greatest monthly was 2.78, at Libby, and the least, 0.02, at Sun River. The month was remarkable for high winds over the entire State; an iron bridge spanning the Yellowstone River 4 miles south of Livingston was wrecked by them on the night of the 27th.

**Nebraska.**—The mean temperature was 28.1°, or 2.5° above normal. The highest was 68° at Benkleman on the 9th, and the lowest, 12° below zero, at Hay Springs on the 2d. The average precipitation was 0.15, or 0.54 below normal. The largest was 1.34, at Rulo; at several stations there was neither rain nor snow.

**Nevada.**—The mean temperature was 28.0°, or 1.7° below normal.

The highest was 78° at Hamilton on the 11th, and the lowest, 34° below zero, at Stofiel on the 18th. The average precipitation was 0.42, or 1.26 below normal. It was extremely light all over the State. The deficiency amounted to 4.12 at Tuscarora, and the only excess was at Wadsworth. The greatest monthly was 3.07, at Lewers Ranch, and the least, 0.00, at Las Vegas and St. Thomas.

**New England.**—The mean temperature was 31.5°, or 3.2° above normal. The highest, 71°, at Norwalk on the 26th, and the lowest, 20° below zero, at Berlin Mills and Enosburg on the 13th. The average precipitation was 3.12, or 0.44 below the normal. The greatest monthly amount was 6.88 at North Conway, and the least, 1.40, at New London. The ground was not well covered with snow during the month and it is feared the frequent thawing and freezing of the surface of the ground has injured grass and grain roots. The want of snow has been severely felt in the lumber districts.

**New Jersey.**—The mean temperature was 37.2°, or 4.7° above normal. The highest was 76°, at Moorestown on the 20th, and the lowest, 3°, at Deckertown and Newton on the 13th. The average precipitation was 2.61, or 1.01 below normal. The greatest monthly was 5.42, at Englewood, and the least, 1.71, at Barnegat.

**New Mexico.**—The average temperature during the month was decidedly below normal, and, with one exception, was the coldest December since the establishment of the station at Santa Fe, in 1871. The highest temperature was 73°, at Eddy on the 14th and Roswell on the 16th, and the lowest, 23° below zero, at Ranches of Taos, on the 30th. The average precipitation was considerably above normal and was fairly well distributed over the Territory. The greatest total was 2.90, at Chama. Aztec, Engle, and Olio reported only a "trace" and San Marcial, 0.00.

**New York.**—The mean temperature was 3.1° above normal. The highest temperature was 69°, at Victor on the 20th, and the lowest, 18° below zero, at Saranac Lake on the 15th. The average precipitation was 3.70, and was generally above the normal. The greatest monthly was 6.31, at Canton, and the least, 1.68, at Middletown.

**North Carolina.**—The mean temperature was 42.4°, or 0.3° below normal. The highest was 76°, at Newbern, on the 2d, and the lowest, 5°, at Linville and Waynesville on the 6th. The average precipitation was 3.4, or 0.59 below normal. The greatest amount was 8.49, at Linville, and the least, 1.03, at Rutherfordton.

**North Dakota.**—The mean temperature was 13.8°, or 0.2° above normal. The highest was 62°, at Berthold Agency, on the 27th, and the lowest, 32° below zero, at Steele on the 1st. The average precipitation was 0.29, or 0.61 below normal. The greatest amount was 0.88, at White Earth, and the least, 0.03, at Willow City.

**Ohio.**—The mean temperature was 33.9°, or 1.2° above the normal. The highest was 79°, at Coalton on the 20th, and the lowest, 13° below zero, at Warsaw on the 13th. The average precipitation was 3.85, or 1.25 above the normal. The greatest was 6.72, at Wauseon, and the least, 1.65, at Thurman. Precipitation occurred at various points in the State on every day of the month, and, in the main, was very well distributed.

**Oklahoma.**—The mean temperature was 39.4°, or 0.9° below normal. The highest was 86°, at Hennessey on the 6th, and the lowest, 8° below zero, at Hennessey on the 20th. The average precipitation was 4.14, or 1.69 above normal. The greatest monthly total was 12.70, at Vinita, and the least, 0.65, at Alva.

**Oregon.**—The mean temperature was 38.8°, or 0.1° above normal. The highest was 68°, at Langlois on the 11th, and the lowest, 17° below zero, at Lorella on the 29th. The average precipitation was 10.62, or 4.34 above normal. The greatest monthly was 25.10, at Nehalem, and the least, 0.59, at Dayville. The precipitation exceeded all previous records for this month, the amount being almost 1.00 more than the next rainiest December, which was that of 1891, with an average of 9.72. The number of rainy days was unusually large. The station at Government Camp, on Mount Hood, reported a total fall of snow during the month of 130 inches.

The observer at Tillamook, Tillamook County, reports as follows:

Friday, December 13, there was an unusual electric display in this vicinity. There were several vivid displays of sheet lightning across the heavens, seeming to permeate all space with flashes of fire, accompanied with tremendous crashes of thunder. Several trees and houses were struck, though no serious damage was done. The public school building was struck, and the balls of fire rolled around promiscuously in every room. The same phenomena was noticed in several dwelling-houses, and several cases of electrical burnings are reported. Lightning came into the telegraph office, but did little damage there. Nothing like it was ever seen before, so all say, and it seems the whole

locality was pervaded with the peculiar electrical demonstration. The storm was followed by a very low barometer.

**Pennsylvania.**—The mean temperature was 34.2°, or 1.5° above normal. The highest was 70°, at Shinglehouse on the 21st, and the lowest, 10° below zero, at Hollidaysburg on the 14th. The average precipitation was 3.22, or 0.05 below the normal. The greatest monthly amount was 6.55 at Wellsboro, and the least, 1.40, at Doylestown.

**South Carolina.**—The mean temperature was 46.1°, or 2.2° below normal. The highest was 80°, at Slaws Forks on the 25th, and the lowest, 13°, at Gillisonville on the 6th and at Central on the 13th. The average precipitation was 3.04, or 0.19 below normal. The greatest monthly amount was, 6.55, at Holland, and the least, 1.25, at Central.

**South Dakota.**—The mean temperature was 22.7°, or about 2.0° above normal. The highest was 69°, at Fort Meade on the 12th, and the lowest, 25° below zero, at Webster on the 2d. The average precipitation was 0.17, or about 0.46 below the average. The greatest monthly amount reported was 1.43, at Webster, and the least, a "trace," at several stations. The month, as a whole, was an unusually pleasant one.

**Tennessee.**—The mean temperature, 41.3, was normal. The highest was 78°, at Waynsboro on the 15th and 23d, and the lowest, 2°, at Rugby on the 6th. The average precipitation was 4.20, or about 0.25 above normal. The greatest monthly was 7.35, at Tullahoma, and the least, 1.59, at Bristol.

**Texas.**—The average temperature for the State was 3.1° below normal. It was generally deficient, except in the northeastern portion of southwestern Texas, where the excess amounted to 1.0°. The precipitation averaged, for the State, 0.43 below normal. There was an excess of from 0.11 to 2.07 along the east coast, which extended less than 25 miles inland, and an excess north of the thirty-first parallel of latitude, east of the one hundredth meridian, of from 0.06 to 2.01. Over other portions of the State there was a general deficiency, greatest over southwestern Texas and the southern portions of central Texas, where less than 40 per cent of the normal amount occurred. The greatest local monthly amount was 6.10, at Marshall, and the least 0.00, at Fort Ringgold.

**Utah.**—The mean temperature was 21.0°, or about 7.0° below normal. The highest was 64°, at St. Georges on the 12th, and the lowest, 24° below zero, at Fort Du Chesne, on the 18th. The average precipitation was 0.78. The greatest monthly rainfall was 1.70, at Heber and the least, "trace," at Cisco, Giles, and Grover. The snowfall averaged 9 inches.

**Virginia.**—The mean temperature, 39.0°, does not show any marked departure from the normal. The highest, 76°, occurred at Ashland on the 24th and 25th, and the lowest, 1° below zero, at Dale Enterprise on the 14th. The average precipitation was 2.89. There was no great departure from the normal, except at Alexandria. It was generally uniformly distributed over all sections. The greatest monthly amount was 6.29, at Cape Henry, and the least, 0.58, at Alexandria. Snow fell in all sections, but most frequently and heaviest in the western counties.

**Washington.**—The mean temperature was 37.4°, or 0.6° below normal. The highest was 66°, at Connell on the 14th, and the lowest, 8° below zero, at Ellensburg and Moxee on the 22d. The average precipitation was 9.00, or 2.86 above normal. The greatest rainfall for the month, 28.14, occurred at Monte Cristo, and the least, 0.42, at Moxee. This was one of the stormiest months on record. Rainstorms occurred almost daily, and severe windstorms followed each other in rapid and constant succession, but none were so severe as those of December 5-12, 1894. At many stations there were only two or three days on which there was no rain. Snow to the depth of 198 inches fell at Monte Cristo and 165 inches at Cascade. The extraordinary depth of snow caused extensive blockades in the mountains.

**West Virginia.**—The mean temperature was 36.8°, or very nearly normal. The highest was 72°, at Bluefield and Hewett on the 25th, and the lowest, 6° below zero, at Bloomery on the 14th. The average precipitation was 2.91, or about normal, and was quite evenly distributed. The greatest monthly total, 4.14, occurred at Marlinton, and the least, 1.85, at Morgantown. Greatest depth of snowfall 9.6 at Marlinton.

**Wisconsin.**—The mean temperature was 25.1°, or 3.1° above normal. The highest was 60°, at Antigo on the 21st, and the lowest, 26° below zero, at Butternut on the 30th. The average precipitation was 0.54, or 0.38 below normal. The greatest monthly was 3.44, at Sharon, and the least, 0.16, at Osceola Mills. The average snowfall was 4.4 inches. The greatest amount was 15.5 inches, at Butternut.

**Wyoming.**—The mean temperature was 23.0°, or slightly below normal. The highest was 70°, at Embar on the 12th, and the lowest, 16° below zero, at Sheridan on the 2d, and Laramie on the 29th. The average total precipitation was 0.45, or about normal. The greatest monthly was 2.10 at Sundance, and the least, 0.00, at Lander and Fort Washakie.

## SPECIAL CONTRIBUTIONS.

### THOMAS JEFFERSON AS METEOROLOGIST.

By FRED. J. RANDOLPH and FRED. L. FRANCIS, of the Weather Bureau.

The following items are extracted from notes furnished to the Editor by the gentlemen above-named. Further interest-

ing remarks on this subject will be found in articles by Mr. Alexander McAdie, published in the Popular Science Monthly, Vol. XLV, p. 331, and in Weather Bureau Bulletin No. 11.

Monticello (in Italian "Little Mountain"), the home of